

Constrained by poverty: Richard Relhan's botanical fieldwork in Cambridgeshire, 1781–1820

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Abstract

Most records in the successive editions of the Rev. Richard Relhan's *Flora Cantabrigiensis* (1785, 1802, 1820) and its supplements (1786, 1788, 1793a) are not attributed to recorders, and consequently the contribution of Relhan himself to these works has never been clear. In this paper I use Relhan's statements in his surviving correspondence to identify the records that can plausibly be attributed to him. His hitherto neglected records of algae, fungi and lichens add significantly to the information provided by those of vascular plants and bryophytes. Taken together, they indicate that Relhan's fieldwork was largely restricted to areas he could visit on foot from his home town, Cambridge, with rather few excursions to more distant parts of the county. His repeated references to his poverty show that this was the main constraint on his fieldwork. He visited some favourite sites near Cambridge repeatedly, especially Gogmagog Hills and Madingley. Although his published works make no reference to environmental change in the county, he did react to the enclosure and drainage of the species-rich wetland Hinton Moor by replacing the records in the final edition of his *Flora* by substitutes from two similar sites, Shelford Moor and Sawston Moor.

Keywords: bryophytes; cryptogams; *Flora Cantabrigiensis*; fungi; lichens; vascular plants.

Introduction

County floras have been used for many years as a source of British plant records, and they are one of the basic resources available to botanists wishing to assess changes in plant distribution. There have been far fewer attempts to analyse the records they contain to reconstruct the activities of the botanists who contributed to them, and thus to build up an understanding of the extent and limitations of the fieldwork of individuals over the centuries. Oswald & Preston (2011) mapped the records published by John Ray and his colleagues in the first county flora, *Catalogus plantarum circa Cantabrigiam nascentium* (1660). This study confirmed that Ray was indeed writing a county flora and showed that he achieved a broad coverage of the county of Cambridgeshire. In this paper I tackle a more difficult task in attempting to assess the extent of the fieldwork of his successor in Cambridgeshire, the Rev. Richard Relhan (1754–1823). As most of the records in Relhan's *Flora Cantabrigiensis* (1785, 1802, 1820) were not attributed to individual recorders, the

extent of his own fieldwork in the county has not hitherto been known, leaving a considerable gap in our knowledge of the history of botany in the county. The following assessment attempts to fill this gap, and thus to provide an example of the fieldwork that could be undertaken by a dedicated but impecunious botanist in the late 18th and early 19th centuries. Its publication also commemorates the bicentenary of Relhan's death in 1823.

The vascular plants listed by Relhan have been identified by Leslie (2019), who included most of the names used by Relhan in his index, and Relhan's bryophyte records have been evaluated by Preston & Hill (2019). These species are reported in this paper by the names applied to them by Relhan (or by Babington in the case of records extracted by him from sources no longer available to us), followed by the current interpretation of Relhan's name in square brackets if this differs. The current interpretation is sometimes simply the modern name for Relhan's taxon, but in other cases it corrects a perceived misidentification of Relhan's or allows for the fact that he was applying a broad species concept. There has been no modern reassessment of Relhan's algae, lichens and fungi, so Relhan's name is given without any modern equivalent except for a few cases where I am reasonably sure of the current identity. References to Relhan's correspondence and other unpublished material are given in the footnotes, with CUL indicating Cambridge University Library; LS, Linnean Society, London; NHM, Natural History Museum, London; ODB, Department of Biology (formerly Plant Sciences), University of Oxford; RSM, Royal Society of Medicine, London; SA, Suffolk Archives, Bury St Edmunds and WL, Dawson Turner correspondence, Wren Library, Trinity College, Cambridge.

Richard Relhan (1754–1823)

The account of Relhan in the *Oxford Dictionary of National Biography* (Boulger rev. McConnell, 2004) is very misleading, so a brief summary of his life is needed as a background to the assessment of his fieldwork in Cambridgeshire.¹ Relhan was born in Dublin but his father, Anthony Relhan, a physician, left Ireland and took over a medical practice in Brighton in 1759. Richard Relhan was educated at Westminster School and Trinity College, Cambridge, graduating with a BA in 1776. Like so many Cambridge graduates he embarked upon a clerical career, starting in 1777 with his ordination as a deacon and appointment to the post of curate at New Romney, Kent. The following year he married Maria Day of Cambridge. He was ordained as a priest in 1779 and he returned to Cambridge in the spring of 1781 to become chaplain of King's College. He was presented by King's College to a college living, the Rectorship of Hemingby, Lincolnshire, in 1791, a post he initially held with the College chaplaincy. I do not know whether he had botanised in the county as an undergraduate, but he certainly did so soon after his return.²

Relhan's life in Cambridge was marked by financial problems which began in the early years of his marriage and persisted until his death. In 1783 he and his pregnant wife had to go to live with her father, who undertook to discharge Relhan's debts. A much more serious financial collapse followed at the end of 1795. A group

¹ These biographical notes are based on the account in Preston & Hill (2019) and on later research which I hope to publish in more detail elsewhere.

² Relhan complained to Richard Pulteney on 26 April 1783 that the fields near Ely had been too flooded in late July 1782 to allow him to collect many specimens, but he planned two further visits to Ely in the coming summer (Relhan to Pulteney, MS/283c/10/3, LS).

of his friends formed a committee to manage his affairs and printed a circular appealing for contributions to rescue his family, including his wife and eight children, from impending ruin. The subscription raised over £700 but this was clearly insufficient to solve his problems. He was obliged to leave his post as King's College chaplain and he went to live in Horncastle, Lincolnshire in the spring of 1796. He was most unhappy there and by December 1797 he had returned to Cambridge, where he lived for the rest of his life. His living at Hemingby was sequestered in 1799, so that the income could be made available to his creditors, and in the same year his friends raised almost £100 to buy his herbarium and present it to the Linnean Society. He never attained any degree of financial security; even as late as 1821 he was confined for a period to the debtors' prison in Cambridge Castle. He died in 1823.

Little other than Relhan's publications, and letters in the archives of some of his botanical correspondents, survives to document his botanical activities. His own papers, including letters sent to him, have not survived. In 1852 C.C. Babington (1860, p. v) extracted manuscript records from Relhan's own, interleaved copy of *Flora Cantabrigiensis*, which was then in the possession of his son, but if it still exists its current whereabouts is unknown to Cambridge botanists.³ Although his herbarium was bought for the Linnean Society, most of the specimens were unlocalised and it therefore came to be seen as of very little value. The few localised specimens from Cambridgeshire were listed by Babington in 1858, when he was preparing his own *Flora of Cambridgeshire*.⁴ The herbarium was sold by the Linnean Society in 1863 for the value of the case in which it was contained and the specimens presumably destroyed.⁵ Only a few specimens collected by Relhan survive in other collections.

The preparation of *Flora Cantabrigiensis*

Relhan's *Flora Cantabrigiensis* (1785) was the second substantial county flora to be published in Britain, following Ray's pioneer work. Unlike the earlier works on Cambridgeshire plants, it included a detailed account of the non-vascular cryptogams (algae, lichens, fungi, bryophytes) in the county. The first edition was based on materials initially collected by Thomas Martyn (1735–1825). Martyn's earlier work, *Plantae Cantabrigienses* (1763), included an annotated check-list of the flora of the county arranged in the Linnaean taxonomic sequence. Martyn had intended to write a more detailed flora but he left the county in 1776 and in 1783 he handed his papers to Relhan, who undertook to complete the task (Gorham, 1830, pp. 124–127). When writing to Martyn after he had received his manuscripts, Relhan said that the vascular plant section of the *Flora* "will be chiefly yours" and that his main task would be to work on the cryptogams.⁶ He therefore "laboured at that difficult tribe", the fungi, in the autumn of 1783 and had finished that section by May

³ Babington transcribed both the vascular plant and cryptogam records into his own interleaved copy of the third edition of *Flora Cantabrigiensis* (CCC.47.354–355, CUL); the vascular plants are summarised as a list at the start of the second volume.

⁴ Babington's list survives in the first volume of his interleaved *Flora Cantabrigiensis* (1820); all the species are vascular plants so he may not have extracted records of other groups (CCC.47.354, CUL).

⁵ This was Babington's statement in his interleaved copy of his own *Flora of Cambridgeshire* (Department of Plant Sciences, Sainsbury Laboratory, Cambridge). In his interleaved *Flora Cantabrigiensis* (CCC.47.354, CUL) he noted that the herbarium had been sold and used as waste paper, a comment which, judging by the handwriting, was added in his old age.

⁶ Relhan to Martyn, 26 November 1783 (Banksian MSS 103B, NHM).

1784.⁷ He also solicited subscriptions for the *Flora* in 1783 (Preston, in press) and had some illustrations drawn for it.⁸ The manuscript may have been submitted to the printer in August 1784⁹ and it was published a year later.¹⁰ This was a remarkably rapid completion of a work which Martyn had been nursing for many years (Gorham, 1830, p. 123).

The first edition (1785) was followed by three supplements (1786, 1788, 1793a) and two further editions (1802, 1820); it is the only British county flora to have appeared in three editions in the author's lifetime.

Identifying the records in *Flora Cantabrigiensis* made by Relhan himself

First edition (1785)

The format of the entries in Relhan's *Flora* can be seen from the typical page shown in Fig. 1. The bibliographical references after the species name include *P. Cant.* for those species included by Martyn in *Plantae Cantabrigienses* (1763), and Martyn's work has to be consulted for references to the occurrence of species in Ray's *Catalogus* (1660) and its supplements (Ray, 1663; Ray & Dent, 1685) and in John Martyn's rearrangement of these species in his *Methodus plantarum circa Cantabrigiam nascentium* (1727). Some species, such as *Lythrum hyssopifolia*, have both a habitat and one or more localities in Relhan's treatment, whereas the entries for commoner species such as *Agrimonia eupatoria* give only the habitat.

Relhan's account of *Lythrum hyssopifolia* (Fig. 1) exemplifies the difficulty of identifying his own records. The Histon and Oakington sites for this species were first published by Ray (1660, p. 71) and Hinton Moor by Martyn (1763, p. 35) whereas Teversham Moor appears for the first time in Relhan's *Flora* (Crompton, 2001). We do not know whether Relhan refound the species at Ray and Martyn's sites and whether he was responsible for discovering the species on Teversham Moor himself or whether he obtained that record from Martyn. This problem was first encountered by Babington (1860, p. x) and it has continued to frustrate subsequent authors (e.g. Leslie, 2019, p. 50).

Although there is no account in the *Flora* itself of the origin of the records it contains, Relhan did provide some information to J.E. Smith in 1799. "For all the habitats [i.e. localities] in my Supplements I alone am answerable; and for all the habitats in my *Flora*, when *P. Cant.* is not inserted; even where this reference is, many of the habitats are mine wholly. *Phleum paniculatum* was inserted, and on the authority of Mr Crowe; who assured me he had found it near Newmarket – one other habitat in the 3 Supplement [1793a] I wish to correct. *Salix rubra* was found by Dr Goodenough, at Ely – the other habitats are wrong: all the rest in the Supplements are correct".¹¹ Thus Relhan in effect claimed responsibility for the localities for those species in the 1785 *Flora* that were not known to Martyn (1763),

⁷ Relhan to Martyn, 26 November 1783, 7 May 1784 (Banksian MSS 103B, NHM).

⁸ Relhan told Martyn on 26 November 1783 that he had received the drawings about a fortnight ago (Banksian MSS 103B, NHM). Dates on the published plates show that James Bolton drew *Athamanta [Seseli] libanotis*, *Cineraria alpina [Tephrosieris integrifolia]* and *Lichen subimbricatus* in 1783 but *Anemone pulsatilla [Pulsatilla vulgaris]* is dated 1784 so it was presumably drawn the following spring; the remaining three plates are undated.

⁹ "My work will go to press now immediately" (Relhan to Martyn, 6 August 1784, Banksian MSS 103B, NHM).

¹⁰ Richard Pulteney thanked Relhan for the pleasure he had received from the *Flora* on 1 October 1785 (draft letter, MS 283c.10.12, LS) and T.J. Woodward told J.E. Smith on 12 October that he had sent to Cambridge for a copy for him (GB-110/JES/COR/18/22, LS).

¹¹ Relhan to Smith, 21 August 1799 (GB-110/JES/COR/8/87, LS).

and for all except two of the sites in the supplements. This does not throw any light on the localities for *Lythrum hyssopifolia* discussed above; the species might have been found by Relhan at Teversham Moor, but we cannot be certain.

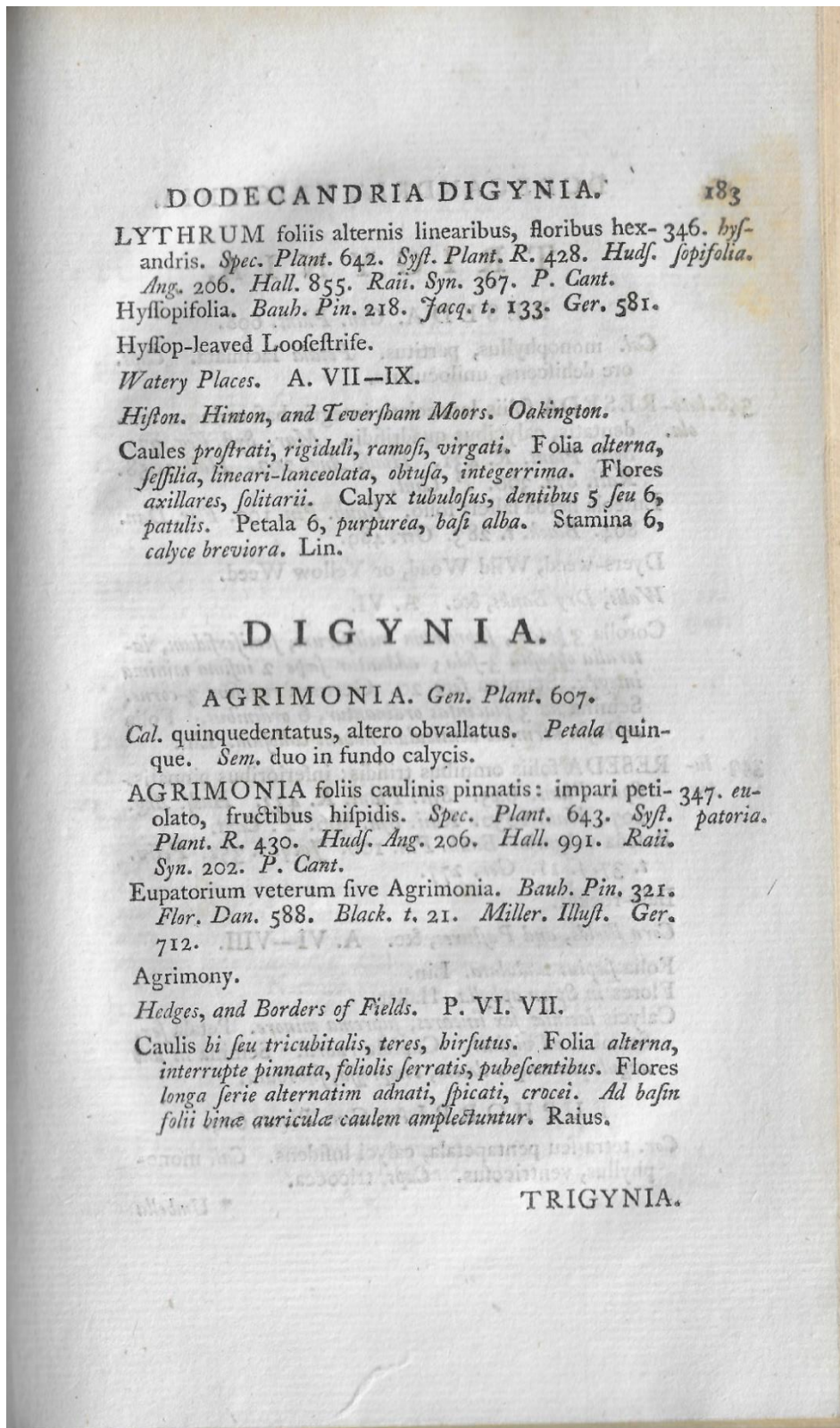


Figure 1. Typical species accounts in Relhan's *Flora Cantabrigiensis* (1785)

A further comment from Relhan to Smith is included in another scrap of correspondence, probably written in 1800. "If ever I publish a second Edition, which I intend (if please God I live) <I> shall mark most faithfully such plants as I never <fo>und – and give to each man as far as I can, the <cre>dit of finding new plants".¹²

In contrast to Relhan's own account, Turner & Dillwyn (1805, p. 42) said that they "understand that he [Relhan] has himself seen every species in the station he has assigned to it in his *Flora*". This possibility has been treated with understandable scepticism by later authors such as Babington (1860, p. x) who had "some doubt concerning the correctness of this statement, because many of the localities seem to be only repetitions of those recorded by his predecessors". Turner & Dillwyn's account is very different to that given by Relhan to Smith in 1799, which applies only to those relatively few species without a reference to 'P. Cant.'. If Turner & Dillwyn based their statement on the information given by Relhan to Smith, as they might well have done, they must have misrepresented it. It is true that in the second edition of the *Flora* (1802), to which Turner & Dillwyn were referring, Relhan specifically identified a few species that had not been seen for many years.¹³ It is very unlikely that Relhan had, even by 1802, seen all the remaining species in all their historic localities. In the absence of any known claim by Relhan that he had, Turner & Dillwyn's view cannot be accepted as accurate.

Even Relhan's own account of the sources of the records in the first edition of his *Flora* requires some modification. He apparently overlooked the fact that he had attributed a few of the species to Israel Lyons' *Fasciculus* (1763), a work published just after Martyn's *Plantae Cantabrigienses*. Secondly, there are a few species in which the attribution to Martyn's 'P. Cant.' was omitted from the first edition, apparently in error, but added in the second edition of the *Flora*.¹⁴ With these exceptions, it does seem plausible that the species in the first edition of the *Flora* can be attributed to Relhan if the text does not include a reference to Lyons (1763) or Martyn (1763).

The three supplements (1786, 1788, 1793a)

The three supplements to Relhan's *Flora* include only species newly reported from the county. None of them is attributed to a named recorder. In the letter to Smith

¹² Relhan to Smith, undated (GB-110/JES/ADD/84, LS). This slip of paper is included with a letter dated 5 September 1800 in the on-line copy of Smith's correspondence on the Linnean Society website but the metadata points out that it may be a different letter and I can see no reason myself for supposing that they belong together. However, a date of 1800 is almost certainly correct. Relhan refers to the plate of *Carex ampullacea* in *English Botany*, published in September 1800, and the three specimens he sent to Smith with this letter are dated 1800 in Smith's herbarium (LINN). The letters in angled brackets in the quoted extract are my interpretation of material that has been lost through wear at the edge of the paper.

¹³ The plants included without comment in the first edition (1785) but described in the second edition (1802) as not seen in the county for many years were *Asperugo procumbens*, the *flore pleno* variant of *Hydrocharis morsus-ranae*, *Sedum album*, *Senecio paludosus* [*Jacobaea paludosa*], *Serapias grandiflora* [an unidentified orchid] and *Sonchus palustris*.

¹⁴ Most of these species are vascular plants, including (for example) *Carex acuta*, *Geranium pratense*, *Poa maritima* [*Puccinellia maritima*] and *Sonchus palustris*, but there are cryptogams in this category, such as *Bryum carneum* [*Pohlia melanodon*].

cited above, Relhan claimed responsibility for almost all the localities in the supplements. However, he acknowledged in the second edition of the *Flora* that five of these species were first found by others (*Campanula latifolia*, *Carex vesicaria*, *Geranium phaeum*, *Vicia sylvatica* [*Ervilia sylvatica*], *Bryum calcareum* [*Seligeria calcarea*]). This is not necessarily at variance with Relhan's claim to be answerable for almost all the localities in the supplements, as the five species might well have been seen later by Relhan himself. Four of the five were perennial vascular plants growing at sites which were precisely defined, three of them close to Cambridge.

Second and third editions (1802, 1820)

In the second edition, Relhan appears to have fulfilled the undertaking he had made to Smith to distinguish those species he had not himself found. He not only identified those taxa which had not been seen by anyone since Ray's time (as described above), but he also ascribed other species to contemporary recorders. Three of these recorders were acknowledged in the Preface (1802, p. vi), the Rev. John Holme, the Rev. John Hemsted and the surgeon William Skrimshire. Holme, a Fellow of Peterhouse, was credited with adding two species to the *Flora*, *Scirpus acicularis* [*Eleocharis acicularis*] at Upware in the Fens and *Rosa villosa* [*R. tomentosa?*] in Cambridge. Twelve records of vascular plants, bryophytes and fungi were attributed to Hemsted, ten of them from Newmarket or nearby sites at the eastern edge of the county and two (both willows) from Prickwillow in the Fens. Some are described as first found by Hemsted, others simply attributed to him. Skrimshire lived in Wisbech at the northern end of the county, the only place where the largely land-locked county of Cambridgeshire approaches the sea (Crompton, 1994; Crompton & Nelson, 2000). The earliest dated specimen in his herbarium, *Blackstonia perfoliata*, was "gathered ... at Cherry Hinton, near Cambridge: in company with my friend Relhan 1792" (Crompton, 1994). Skrimshire contributed no less than 31 records from his home area to the 1802 edition, mostly of vascular plants or algae, especially maritime plants and seaweeds from the vicinity of the tidal River Nene. All Skrimshire's records are simply attributed to him; none are described as first found by him. It is noteworthy that all the records attributed to Holme, Hemsted and Skrimshire are for species or varieties added to the *Flora* since the first edition, rather than additional localities for species already known in 1785. Seven other people, not mentioned in the Preface, are also credited with one or two records in the text.¹⁵

Unlike the second edition, the third edition has very few additional records attributed to named recorders. There is a single additional record from each from three botanists who had been acknowledged in 1802: Hemsted found the fungus *Agaricus coccineus* near Newmarket, Holme recorded the moss *Tortula aristata* [*Barbula unguiculata*] between Snailwell and Newmarket, and Skrimshire reported the lichen *Lichen caesio-rufus* at Wisbech. In addition, there are single records of *Geranium pyrenaicum* made at Barnwell near Cambridge by Rev. William Pulling, late

¹⁵ The seven are the late Rev. John Chevallier, formerly Master of St. John's College (*Geum rivale*), James Crowe (*Phleum paniculatum*), James Dickson (*Bryum calcareum* [*Seligeria calcarea*]), the Rev. Robert Forby, late Fellow of Caius College (*Geranium phaeum*), the Rev. Samuel Goodenough (*Salix x rubra*), Charles Miller (another record of *Phleum paniculatum*, cited from Hudson's *Flora Anglica* (1778)) and the Rev. Benjamin Newton, late Fellow of Jesus College (*Carex vesicaria*).

of Sidney Sussex College, and of *Polytrichum attenuatum* [*P. formosum*] at Gamlingay, credited to J.S. Tozer of St John's College.

It seems reasonable to ascribe to Relhan the newly published records in the second and third editions of the *Flora*, except for those attributed to other botanists. It is clear that the species added to the county flora by Hemsted, Holme and Skrimshire were specifically attributed to them. The assumption that additional localities for species already known from the county were all made by Relhan is rather more sweeping. If Relhan's three botanical friends found over 40 species new to the county, they are likely to have found additional sites for known species as well. Whether they thought it worth reporting them to Relhan, and if so whether Relhan thought it worth publishing them, is unknown. However, we do know that the published records of the two most active botanists, Hemsted and Skrimshire, were restricted in their geographical scope, Hemsted's largely to the Newmarket area and Skrimshire's solely to the environs of Wisbech. Despite this, Skrimshire's unpublished manuscripts suggest that he travelled more widely in the county (Crompton & Nelson, 2000).

Compilation of records attributable to Relhan

In this paper I have adopted the working hypothesis that the records in the three groups defined above were made by Relhan. These are, in summary, 1) records in the first edition of the *Flora* (1785) for species that are not included in Martyn's *Plantae Cantabrigienses* (1763) or attributed to Lyons (1763); 2) records in the three supplements (1786, 1788, 1793a), with the exceptions identified by Relhan, Crowe's *Phleum paniculatum* and Goodenough's *Salix x rubra*; 3) new localities for species published in the second and third editions of the *Flora* (1802, 1820), except for those attributed to other botanists. I have extracted the details of localised records in these groups into a spreadsheet, disregarding the many species for which Relhan gave only a habitat (in the modern sense) but no localised records. This provided a total of 1117 records. A record is defined as a combination of species and locality; Relhan provided more than one locality for many species and I treated each as a separate record. It is possible to allocate 1107 of the 1117 records to a 10-km square and 807 more precisely localised records to a tetrad.¹⁶

In addition, there are 88 additional records from Cambridgeshire amongst those extracted by Babington from Relhan's herbarium and his interleaved *Flora*, as described above, or attributed to Relhan in Turner & Dillwyn's *Botanist's guide* (1805). This total excludes records that merely duplicate those published by Relhan. These 88 records have all been allocated to a hectad and 58 of them to a tetrad. This gives a total of 1205 records, including 1195 hectad and 865 tetrad records.

The records of vascular plants are treated separately from those of the non-vascular cryptogams, henceforth simply referred to as cryptogams, in the analyses below.

¹⁶ I allocated those localities given simply as town, village or parish names to the most appropriate 10 × 10 km square of the Ordnance Survey grid but more precise localities to a tetrad. This inevitably involves a degree of approximation for sites that span two squares or fall at the junction of four. Published gazetteers (Crompton, 2001–04; Leslie, 2019; Oswald & Preston, 2011) were used to find some of the more obscure place names. A few localities are too general to be allocated to a 10-km square (e.g. Isle of Ely) and I failed to allocate a few of the more specific sites to a tetrad (e.g. "the first Dunghil by the Road to Madingley"). The special case of Newmarket Heath is explained in the text.

Temporal range of Relhan's records

Very few of the records are dated in the *Flora*, but the six publications do allow them to be arranged in a temporal sequence. The 1117 records extracted from these publications are summarised in Table 1. It is worth emphasising that these records enumerate only the localities for species added to the Cambridgeshire flora in the first edition and the supplements, as only the localities for new species in the first edition are identifiable as Relhan's and the only species reported in the supplements are those new to Cambridgeshire. However, the totals for the second and third editions include additional localities for all species. The numerous records of new species included in the first three supplements show how involved with the botany of the county Relhan had become. He clearly maintained his interest in all groups during the 35 years from the first edition of the *Flora* until the third. However, the additions to the second edition were much more numerous than those to the third edition, presumably indicating a reduction in the intensity of his botanical activity after 1802. The fungi are the group with most records from the first edition, which is consistent with Relhan's account of his work when preparing this volume; they also outnumbered any other single group in all three supplements. Bryophytes are exceptional in having more records added to the third edition than to the second.

Records from other sources cannot be arranged in the same temporal sequence, but the overall numbers are also given in Table 1. They comprise 76 records of vascular plants compared with only 12 for cryptogams.

Table 1. The number of newly published, localised records believed to be attributable to Relhan in the three editions (E1–3) and three supplements (S1–3) of his *Flora Cantabrigiensis*, and from the other sources detailed in the text. The criteria for the selection of records are discussed in the text

Group	E1 1785	S1 1786	S2 1788	S3 1793a	E2 1802	E3 1820	Other	Total
Algae	1	1	3	2	16	8	2	33
Lichens	14	15	4	5	45	22	5	110
Fungi	40	25	26	87	72	23	4	277
Bryophytes	11	15	5	11	23	67	1	133
Vascular plants	16	14	22	20	408	96	76	652
Total	82	70	60	125	564	216	88	1205

Spatial distribution of Relhan's records

The number of the 1195 gridded records of vascular plants and cryptogams is mapped in 10-km squares in Fig. 2 and the distribution of the 865 localised records is mapped in tetrads in Fig. 3. The distance of the records from Cambridge is summarised in Fig. 4. Fig. 2 shows a very marked concentration in a band in south-central Cambridgeshire, and particularly in the vicinity of Cambridge (TL45). There are rather few in the extreme south of the county and very few in the northern (Fenland) half, except for a minor concentration at Wisbech in the extreme north. The patterns for vascular plants and non-vascular cryptogams are essentially similar, although the cryptogams are even more strongly concentrated in the south-central belt and there are virtually no cryptogam records from Fenland. The tetrad maps

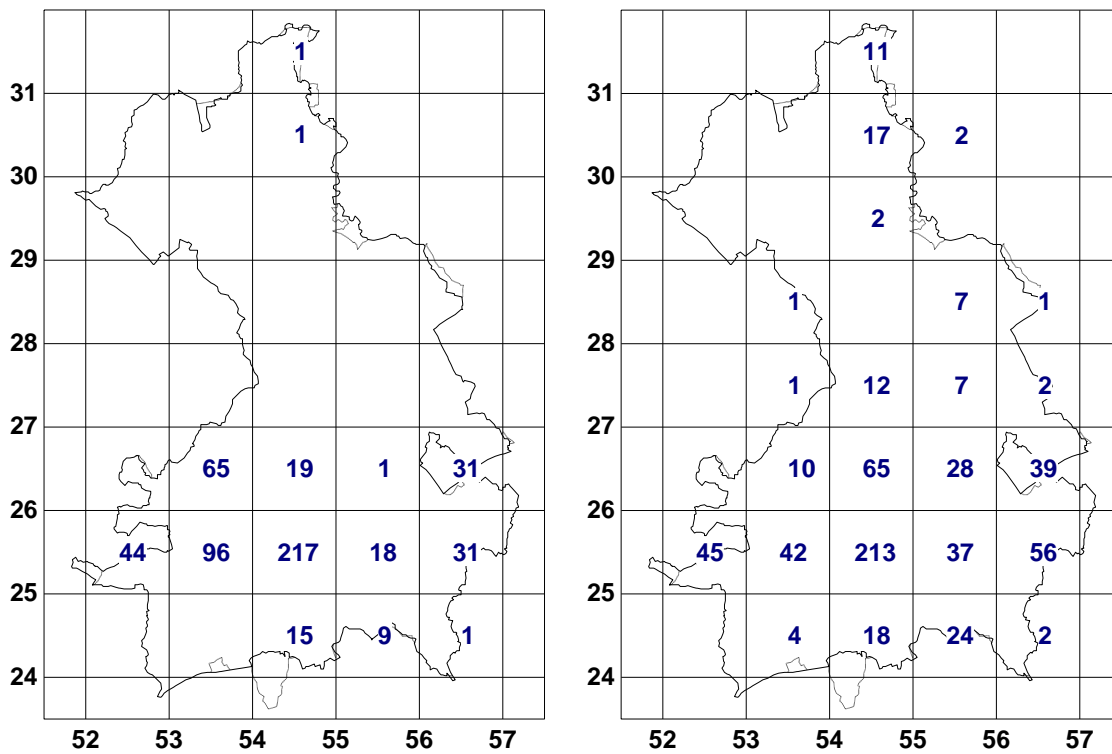


Figure 2. The number of records attributed to Relhan of non-vascular cryptogams (left) and vascular plants (right), plotted in 10-km squares

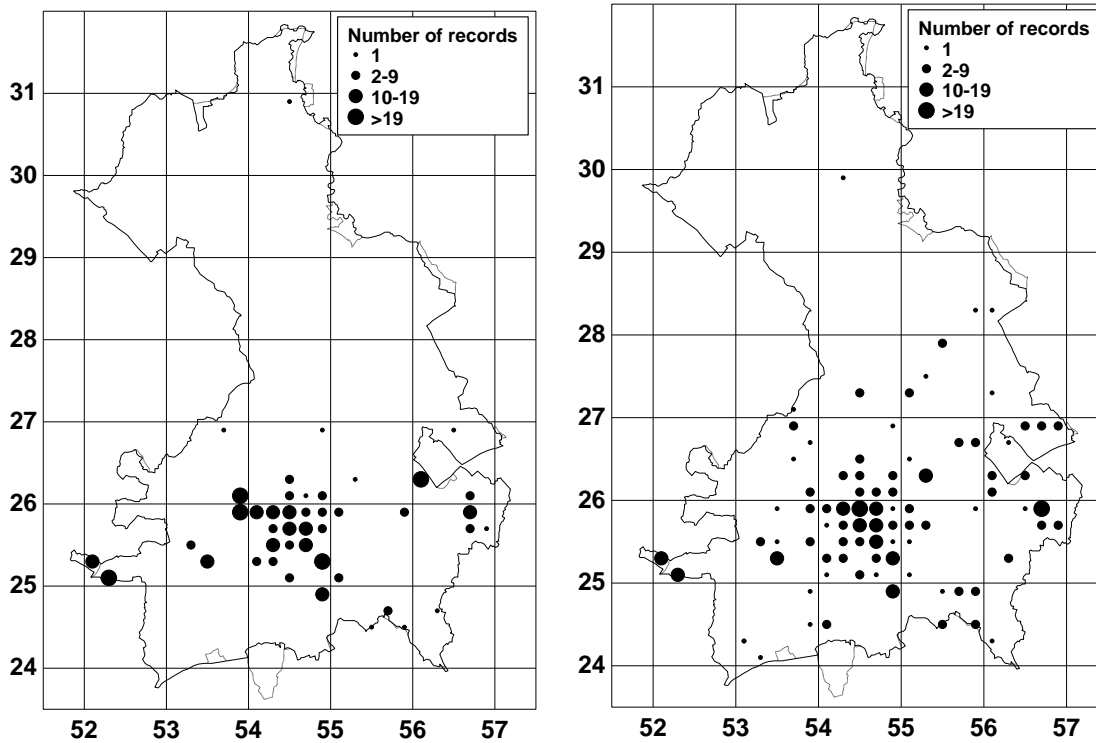


Figure 3. The number of records attributed to Relhan of non-vascular cryptogams (left) and vascular plants (right), plotted in tetrads

(Fig. 3) show the concentration of records around Cambridge even more clearly. Tetrads with localised records are very sparsely distributed away from Cambridge, although a few tetrads in both the west and the east of the county have a relatively high number of records. A similar pattern has previously been shown by plotting all the bryophyte records made by Relhan and his contemporaries (Preston & Hill, 2019, p. 56).

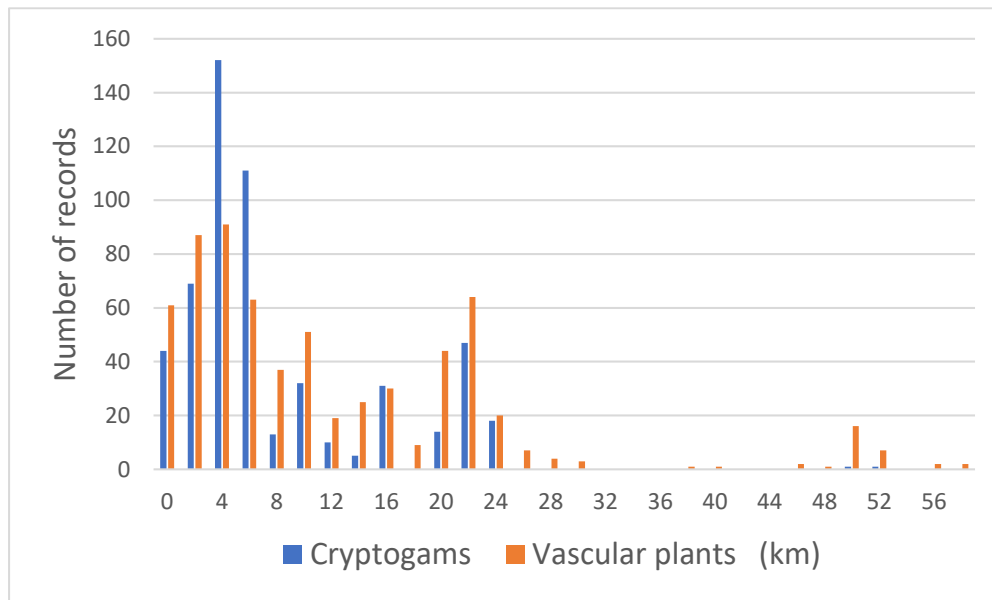


Figure 4. Distance from King’s College, Cambridge of the sites of the records attributed to Relhan. 0 indicates 0–1.9 km, 4, 4–5.9 km etc.

Habitats of the species recorded

The locality and habitat information provided in the floras can be used to group the records attributed to Relhan into broad habitats (Table 2). The records from Arable are almost all of vascular plants, with just one bryophyte (*Riccia glauca* [*Riccia* sp.]). The Built environment category is largely made up of species on walls, and not surprisingly is dominated by lichens. Grassland and heathland are grouped together as Relhan’s heaths include communities on chalk (Gogmagog Hills, Newmarket Heath) as well as sandy soils. He recorded a wide range of species on what would have been largely nutrient-poor habitats. The ‘Hedges and ruderal’ category comprises a range of habitats including hedges, the baulks between fields and waysides, waste places and dung hills. Species listed by Relhan from “Woods, and Hedges” are classified as Woodland species if the locality is a woodland, but as Hedge species if not. Most of the species recorded in the Hedges and ruderal category are vascular plants, with a few grassland and coprophilous fungi. Woodland is the single largest habitat category, and has a good representation of all groups except algae. The Rotting wood category is used for species only if the broad habitat (e.g. Woodland) is not known. Not surprisingly, most of the species recorded from Rotting wood are fungi, some of them known from decaying trees (especially willows) and tree stumps, but there is also a group of lichens on old park pales.

Table 2. The habitats of the newly published, localised records believed to be attributable to Relhan in the three editions (E1–3) and three supplements (S1–3) of his *Flora Cantabrigiensis*

Habitat	Algae	Lichens	Fungi	Bryophytes	Vascular plants	Total
Arable				1	46	47
Built environment	1	28	3	5	15	52
Grassland and heathland		40	42	34	115	231
Hedges and ruderal			11		77	88
Rotting wood		15	40			55
Woodland		13	152	22	75	262
Wetland	4	1	3	47	176	231
Aquatic	23			11	32	66
Unclassified	3	8	22	12	40	85
Total	31	105	273	132	576	1117

The Wetland group includes plants of watery places, river and ditch sides, marshes, moors, fens, bogs and salt marshes; along with the Aquatics, it is largely made up of vascular plants and bryophytes with a good representation of algae in the Aquatic habitats. Unclassified habitats are those for which Relhan gives two or more different habitats for a species (e.g. *Mentha agrestis* [*M. arvensis*] from "Corn-fields, and Meadows") or if the habitat does not fit into the habitat groups I have defined (e.g. chalk pits, rotten straw, tree trunks).

The sites with most records

Inspection of the records shows that there are a few sites or site complexes that recur repeatedly, and these are responsible for the tetrads with the most records in Fig. 3. The records from these sites are summarised in Table 3 and the sites are mapped in Fig. 5. They are examined in more detail below, starting with sites closer to Cambridge and then moving onto those further away. For each site, I discuss any independent evidence that the locality was known to Relhan, thus testing the assumption that the unattributed records in the *Flora* really were made by Relhan.

Cambridge, TL45N, P, U

Although there are 88 records from these tetrads, which together cover the town of Cambridge, this does not reflect a concentration on particular sites but a small number of observations from over 30 different localities. The site with most records is Coe Fen, with eight, and other areas along the river include Paradise, Soph's Pool, Sheep's Green, Queens' Green, Newnham Mill, Small Bridges, Garrett Hostel Lane, ditches in the vicinity of Trinity College, Jesus Green, Coldham's Common, Stourbridge and the Paper Mills at Ditton, as well as Parker's Piece, an area of common land away from the river. Eight colleges are mentioned (Christ's, Clare, Corpus Christi, Pembroke, Peterhouse, Queens', St John's and Trinity), as is the Botanic Garden and one private house.

Table 3. The number of newly published, localised records in the three editions of Relhan's *Flora Cantabrigiensis* (E1–3) and its three supplements (S1–3) from the sites with the most numerous records. The number of additional records from other sources is also given after '+' in the Site column and included in the overall site totals given after the site name. Records attributed to recorders other than Relhan himself are excluded

Site	E1 (1785)	S1 (1786)	S2 (1788)	S3 (1793a)	E2 (1802)	E3 (1820)
Cambridge (88)						
Cryptogams (38+1)	6	5	2	2	19	4
Vascular plants (34+15)		1		1	20	12
Gravel Hill, Hill of Health (27)						
Cryptogams (14)	1	4	1	1	3	4
Vascular plants (9+4)	1				8	
Hinton Moor (34)						
Cryptogams (17+1)	4	3	2	1	7	
Vascular plants (11+5)		1		1	9	
Shelford Moor (26)						
Cryptogams (13+2)						13
Vascular plants (11)					1	10
Gogmagog Hills (72)						
Cryptogams (59+1)	15	9	1	13	14	7
Vascular plants (11+1)	3		1		5	2
Madingley (147)						
Cryptogams (133+1)	9	11	7	34	47	25
Vascular plants (10+3)	3			1	4	2
Sawston Moor (24)						
Cryptogams (13)				1	5	7
Vascular plants (11)					8	3
Eversden Wood (27)						
Cryptogams (17)			3		3	11
Vascular plants (10)					9	1
Hall Wood, Wood Ditton (36)						
Cryptogams (15)				13	2	
Vascular plants (20+1)				2	18	
Newmarket Heath (34)						
Cryptogams (27)	10	6	1	4	4	2
Vascular plants (6+1)	1		1		4	
Chippenham (22)						
Cryptogams (1)		1				
Vascular plants (21)		2	1	1	17	
Gamlingay Bogs etc. (41)						
Cryptogams (24)	1	2	3	5	4	9
Vascular plants (16+1)	1	1	1	2	8	3

White Wood, Gamlingay (28)						
Cryptogams (18)				11	4	3
Vascular plants (10)				1	4	5
Wisbech (25)						
Cryptogams (2)			1		1	
Vascular plants (19+4)			8		11	

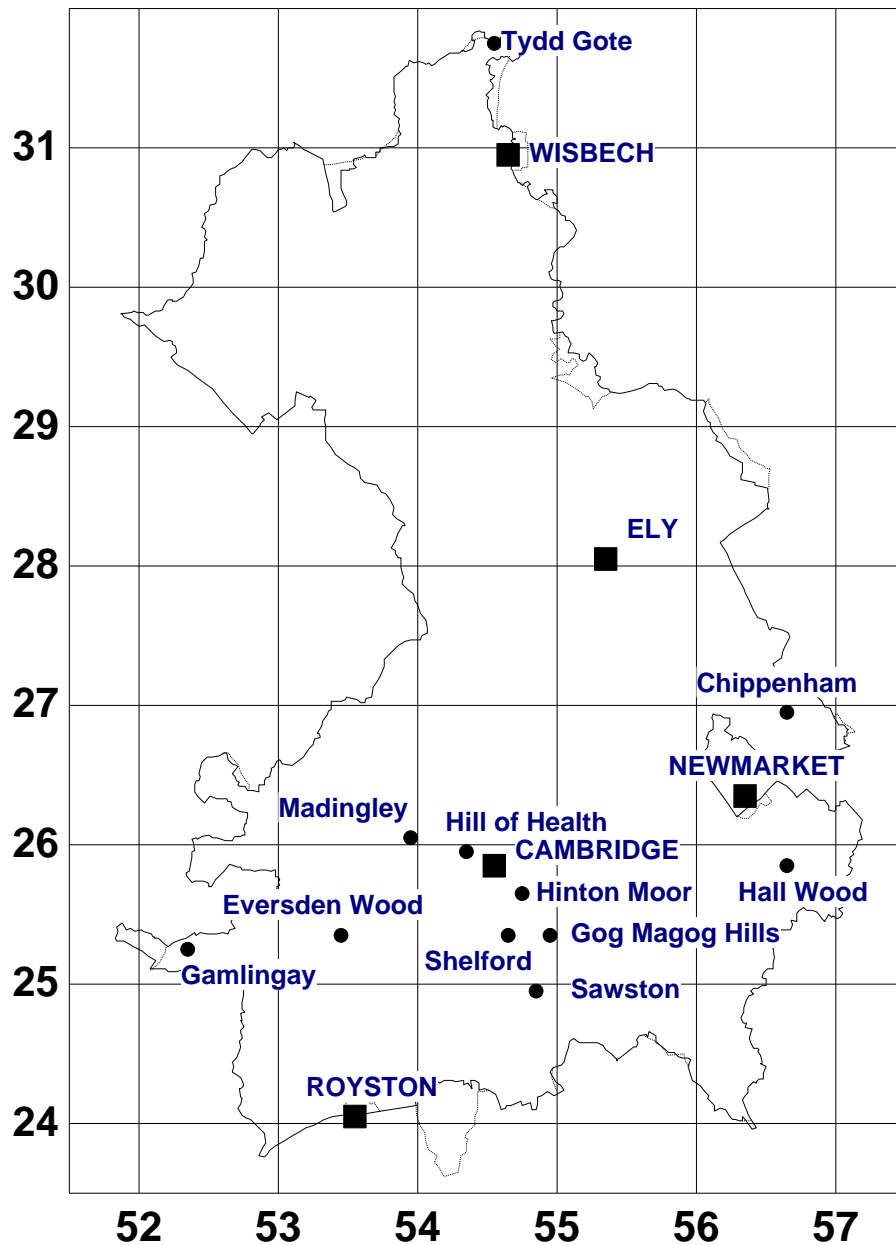


Figure 5. The main towns in Cambridgeshire (capitals), and the sites with most records attributed to Relhan

At the southern edge of the town there are records from the vicinity of the first milestone on the Trumpington Road, and at the northern edge from Cambridge Castle, the Pound Hill area (especially a wall between here and the Trumpington Road, where three lichens were recorded), the brick kilns on the Chesterton Road, Chesterton church and the Barnwell gravel pits.

There is independent evidence to connect Relhan directly to some of these records. Coldham's Common is clearly one site he knew well. He found a plant that he thought was *Sium repens* [*Helosciadium repens*] there in August 1799. At this time he was particularly interested in mints and he sent two *Mentha* specimens from a ditch near the Common to J.E. Smith, assuring him that further material of one of them was easily had from there.¹⁷ An unusual record from Cambridge was that of the fungus *Agaricus volvaceus*, initially found by Professor Busick Harwood in his hot house and shown to Relhan, who identified it and sent material to Sowerby;¹⁸ the species was the subject of the first plate in *English fungi* (Sowerby, 1796, t. 1; Relhan, 1802). The distinctive alga *Conferva reticulata* [*Hydrodictyon reticulatum*] was known to Martyn (1763) and recorded from the Botanic Garden in the first edition of the *Flora*; it was certainly known there to Relhan as well (Smith, 1807, t. 1687), though he told Dawson Turner in 1798 that it was not to be found that year.¹⁹

On Christmas Day 1806 Relhan, stimulated by an unusually mild winter, drew up a list of the "indigenous plants which were in flower". This mid-winter botanising was perhaps more unusual then than it would be today, when botanists are invited to survey species flowering at New Year (Marsh, 2022). The list of 49 species was sent to the *Oxford University and City Herald* by a pseudonymous correspondent ('Olim Cantab.') and published on 10 January 1807 as a permanent record, as "perhaps a century may pass, before another season of the same mildness may occur".²⁰

Two dated records from Relhan's interleaved *Flora* show that his interest in plants persisted well into the 19th century, *Bromus racemosus* in a ditch beyond Barnwell brick pits in 1816 and *Chenopodium hybridum* [*Chenopodiastrum hybridum*] found near Maids Causeway in 1817.

Gravel Hill, Hill of Health and Trinity Conduit Head, TL45J

These sites were small outcrops of glacial gravels at the edge of Cambridge. They supported a distinctive suite of plants of dry, acidic soils in a county where most soils are calcareous. The Hill of Health, in particular, was well-known to Ray (1660) and to later Cambridge botanists (Preston, 2018). As would be expected from the nature of the sites, the species Relhan reported were predominantly lichens (6), bryophytes (5) and vascular plants (13), with a few fungi (3). New records were included in all editions and supplements of the *Flora*, suggesting that Relhan made repeated visits over the years.

¹⁷ Relhan to Smith, 21 August 1799 (GB-110/JES/COR/8/87, LS). No *Mentha* specimens from Relhan survive in Smith's herbarium (LINN).

¹⁸ Relhan to Sowerby, undated but probably 1795 (Sowerby Collection A47, NHM). Sowerby's published account says that it was first found by Relhan in 1794, and Relhan's letter implies that he was sending it the year after its first discovery.

¹⁹ Relhan to Turner, 29 May 1798 (O.13.1 69, WL).

²⁰ I have not included these 49 records in the total of 1205 analysed in this paper.

There are three records from the Hill of Health or its vicinity amongst those extracted from Relhan's interleaved *Flora* by Babington, including one, of plentiful *Moenchia erecta* [identity uncertain], dated 1805.

Hinton Moor, TL45T and Shelford Common and Moor, TL45S

The spring-fed wetland of Hinton Moor was an area of common land within easy walking distance of Cambridge, c.3.5 km south-east of the town centre. It was one of the favourite sites for Cambridge botanists in the 17th and 18th centuries. The special plants listed by Ray (1660) and recorded by later authors such as Martyn (1763) included aquatic plants from its waters and a rich range of species of short calcareous wetland communities, as well as some species characteristic of more acidic conditions (Oswald & Preston, 2011; Preston & Hill, 2019). Relhan's records suggest that he shared his predecessors' enthusiasm for the site. The vascular plants were presumably too well-known to provide many species new to the county, and the only species added in the supplements were in difficult groups, *Oenanthe pimpinelloides* [*O. lachenalii*] and *Carex rostrata*, the latter reported by Relhan (1793a) from no fewer than six sites in the county. It was also one of the sites where he later found *Chironia pulchella* [*Centaureium pulchellum*] in the county, and his specimen from here, sent to J.E. Smith in 1800, is in **LINN**. Most of the new cryptogams he reported between 1785 and 1788 were bryophytes, but in the third supplement (1793a) all seven new species were algae from the site's springs and ditches. Surprisingly, Relhan added *Drosera anglica* to the county flora from here in 1802; it had presumably been overlooked as *D. intermedia* by earlier botanists.

Hinton Moor was one of the sites where Relhan rediscovered the orchid *Ophrys loeselii* [*Liparis loeselii*]. "Ray has mentioned this plant as the production of some moors in the neighbourhood of Cambridge: but those moors were long searched for it in vain by succeeding botanists, till the Rev. Mr. Relhan discovered it a very few years ago, growing, not very sparingly, where Ray has reported" (Smith, 1792a, t. 47). Relhan actually rediscovered the species in 1787, and confirmed its identity by comparing it to specimens in London.²¹ He attributed "the reason of this plant remaining so long latent to its usual situation close to the stems of Rushes".²² Further confirmation that Relhan knew the flora of Hinton Moor comes from a letter he sent to the *Gentleman's Magazine* in 1793, dealing with a variant of *Carex dioica*, a species he described as "common on Hinton and Teversham Moors" (Relhan, 1793c). He found *Utricularia minor* on Hinton Moor after the publication of the 1793 Supplement, listing the record in a letter sent to William Withering in October 1795.²³ There were several records of other species from the site in his own interleaved *Flora*, and an undated specimen of *Bryum ventricosum* [*B. pseudotriquetrum sens. lat.*] collected by Relhan at Hinton Moor survives with Sowerby's drawings for *English botany* in **BM** (Preston & Hill, 2019, p. 236).

Relhan removed almost all references to Hinton Moor from the third edition of the *Flora*, though he retained mention of *Chara hispida* "In the Watercourse by the

²¹ Relhan to Pulteney, 14 December 1787 (MS/283c/10/16, LS). Ray (1660) had reported the species from Hinton and Teversham Moors. In a note dated 30 June 1787 J. Lightfoot reported that Relhan had found it on Hinton and Teversham Moors; he inserted Fulbourn Moor into the list of sites, perhaps later (Lightfoot's interleaved copy of Ray (1724), opposite p. 382, MS.Sherard 457, ODB).

²² T.G. Cullum's interleaved copy of Hudson (1778), opposite p. 390 (CUL695, SA).

²³ Relhan to Withering, 22 October 1795 (RSM).

side of Hinton Moor". By 1820 the site had been drained, following completion of the process of parliamentary enclosure in 1811. In many cases the Hinton localities were replaced by references to the species on Shelford Moor. Relhan was clearly investigating the flora of this Moor in May 1806, when he sent a parcel to James Sowerby which included at least three plants from there, double-flowered *Cardamine pratensis*, *Carex oederi* [*C. viridula*] and a *Potamogeton*.²⁴ Twelve of the 19 records from Shelford Moor added to the third edition were direct replacements for Hinton Moor, so that the locality paragraph for *Carex pulicaris*, for example, was altered from "Hinton Moor. Meadows near Quey Water, &c." (1802) to "Shelford Moor. Meadows near Quey Water, &c." (1820). In addition, Relhan replaced the Hinton locality of *Eriophorum angustifolium* by Shelford; although the published *Flora* does not say so, this species was presumably found at Shelford Moor too as that is the locality given in Relhan's interleaved *Flora*. One of the four records from Shelford Common was also added to the account of a species, *Chlora perfoliata* [*Blackstonia perfoliata*], which had formerly been noted from Hinton Moor and other sites. The other ten records from Shelford Common or Shelford Moor were additional localities for species that had never been recorded from Hinton Moor, or for species newly added to the *Flora*. Shelford Common was still of botanical interest in 1830, when it was one of the venues on Henslow's programme of "herborizing excursions" (Preston & Hill, 2019, p. 32).

Gogmagog Hills, TL45W

These chalky hills are only 75 m above sea level but they command a good view of Cambridge, some seven km to the north-west. The area was the main area for species of chalk grassland known to the Cambridge botanists; it featured prominently in Ray's *Catalogus* and Martyn (1763) also listed its special species. Relhan clearly knew the area while he was preparing the first edition of the *Flora*, and he reported the many hundreds of plants of *Hypochaeris maculata* he saw there in 1783 to at least two of his correspondents.²⁵ The material of *Lichen muscorum* illustrated by James Bolton in the *Flora* (1785) presumably came from there as it was the first site from which the species was found in Britain (Smith, 1799b, t. 626) and the only Cambridgeshire site from which it was reported in the *Flora*. The Gogs could well have been the source of some of the other plants illustrated by Bolton, especially *Lichen lentigerus* and *Cineraria alpina* [*Tephrosieris integrifolia*] (only otherwise then known in the county from Newmarket Heath) but also perhaps *Anemone pulsatilla* [*Pulsatilla vulgaris*], for which it was the best known of its three cited sites, and *Thesium linophyllum* [*T. humifusum*].

The sequence of new records in the supplements and later editions of the *Flora* shows that Relhan continued to visit the site. The predominance of cryptogam records may reflect the fact that the vascular plants were already well-known. The 60 cryptogam records comprised algae (1), lichens (19), fungi (24) and bryophytes (16). The fungus *Agaricus deliciosus* had been recorded by Relhan before he finished the first edition of the *Flora*. In October 1792, at a time when he confessed himself "half crazy after the Fungi", Relhan told William Withering that it was "extremely common on Gogmagog Hills, last week I saw hundreds of them ... the juice is

²⁴ Relhan to Sowerby, 30 May 1806 (Sowerby Collection A47, NHM).

²⁵ Relhan to Pulteney, 2 July 1783 (MS/283c/10/7, LS); Relhan to Martyn, 17 July 1783 (Banksian MSS 103B, NHM).

extremely acrid ... I have once burnt my tongue with it, and will taste it no more".²⁶ Relhan found another species as just three individuals on the north side of the Hills and sent material to James Sowerby in 1795. He told Sowerby that he had never considered a name for it and would leave that to him;²⁷ Sowerby duly illustrated it as *Helvella relhani* (Sowerby, 1796, t. 11). It is now regarded as a variety, var. *relhanii*, of *Verpa conica*.

Like Hinton Moor, the flora of the Gogs was heavily impacted by agricultural improvement in the early 19th century. Relhan told Dawson Turner in April 1802 that "Gogmagog Hills will soon be under a general cultivation".²⁸ There is no mention of this (or any other contemporary landscape change) in the later editions of the *Flora*, but Relhan did add a record of *Lichen hypnorum* from "Gog Magog Hills, on the newly ploughed-up Land" (1802). By contrast *Lichen resupinatus* was described as "Formerly on Gogmagog Hills" by Relhan (1820). Despite the cultivation, further species were added from here in the 1820 edition, although the two vascular plants were species of corn fields, *Lolium arvense* [*L. temulentum* var. *arvense*] and *Stachys arvensis*.²⁹

Madingley, TL35Z, 36V and 45E

All 147 records from Madingley are considered together here; most are from Madingley Wood (79) and Madingley Plantations (41).³⁰ Madingley Wood is an ancient wood, although one with a complex history (Rackham & Coombe, 1996). Madingley Plantations presumably refers to the plantations in and around the Park. Relhan lists fungi associated with "the cones of Fir trees" (*Peziza pineti*, 1793a), "Oak leaves" (*Peziza comitalis*, 1802) and "the Fallen Leaves of Holly" (*Sphaeria bifrons*, 1802) from the Plantations, so they clearly included both deciduous trees and conifers. There are three records of lichens (*Lichen inquinans*, *L. sanguinarius* and *L. scalaris*) from the Park gates and pales. Madingley is 5.5 km west of Cambridge, within easy walking distance along the Madingley Road (from which there are also a few records, not included in this section). There are many records from Madingley Wood in Ray's *Catalogus* (1660) and it continued to be visited by John Martyn and his son Thomas in the 18th century (Martyn, 1763 p. 31, Preston & Hill, 2019, pp. 26–27). Madingley Bath (Moor Barns Bath) was known to John Martyn c.1730 (Swale & Belcher, 1993). The records from Madingley Plantations are a novel feature of Relhan's *Flora*.

The number of records from sites in the Madingley complex is much greater than that from any of the other sites listed in Table 3. Most of these records are of cryptogams, especially fungi. There were 61 fungi (and only seven vascular plants) amongst the 79 records from Madingley Wood and 38 fungi (and just one vascular plant) amongst the 41 records from Madingley Plantations. As with the Gogmagog

²⁶ Relhan to Withering, 15 October 1792 (RSM).

²⁷ Relhan to Sowerby, 6 July 1795 (Sowerby Collection A47, NHM).

²⁸ Relhan to Turner, 24 April 1802 (O.13.2 161, WL).

²⁹ *Stachys arvensis* was reported from "Corn Fields. Near Gogmagog Hills." by Relhan (1785) as its only site in the county; this was replaced by a locality near Eversden Wood in 1802 but Gogmagog Hills was reinstated in 1820.

³⁰ The sites at Madingley are situated at the junction of four 10-km squares and some can only be gridded rather arbitrarily. I have gridded the unlocalised Madingley records as TL36, and those from Madingley Plantations as TL36V and Madingley Wood as TL35Z (although the latter extends into TL45E). There are also a few records from Madingley Park (TL36V), Madingley Bath, Madingley chalkpit and Madingley Grove (all TL45E).

Hills, the continuous sequence of records added in the supplements, then in the two later editions of the *Flora*, suggests that the Madingley sites were visited frequently between 1781 and 1820. There is explicit evidence that some of the species were recorded by Relhan himself, even though the records in the *Flora* are unattributed. One early find was *Mucor lichenoides*, reported to Martyn in 1783.³¹ Relhan's comment in the Appendix to the third supplement (1793a) that *Primula inodora* [*P. elatior*] and *P. vulgaris* ought to be treated as one species was based, in part, on material from Madingley Wood.³² He found the 'Conjurer of Chalgrave's fern' [*Tranzschelia anemones*] in great abundance at Madingley Wood in 1792–93, publishing the find in a letter to the *Gentleman's Magazine* (Relhan, 1793b) as well as the third supplement. Relhan realised that this 'fern' was actually a parasitic fungus on the leaves of *Anemone nemorosa*. His planned "separate publication" with "the full history of the plant, illustrated by coloured plates" never appeared, though his material was very well illustrated by James Sowerby (1796, t. 53). He later sent specimens of *Agaricus tuberosus* and *Merulius foetidus* from Madingley Wood to Sowerby on 10 August 1795.³³ He coined the name *foetidus* for the latter as it "stinks abominably"; it was illustrated by Sowerby (1796, t. 21). In 1797 Relhan sent *Peziza comitalis* to Sowerby from Madingley Plantations (Sowerby, 1797, t. 118).³⁴ Records of these species were duly published by Relhan (1802).

Sawston Moor, TL44Z

This wetland site some 10 km SSE of Cambridge is not mentioned by Ray (1660), John Martyn (c.1729), Thomas Martyn (1763) or Relhan (1785). The published records suggest that Relhan did not investigate its flora until the late 1780s or early 1790s. It first appeared in his works as one of two sites for the aquatic liverwort *Jungermannia natans* [*Ricciocarpos natans*], added to the Cambridgeshire flora in the third supplement (1793a). The later editions of the *Flora* add a further 23 records of wetland algae (3 species), bryophytes (9) and vascular plants (11) from the site. It clearly had a rich flora very similar to that of Hinton Moor, and seven of the eight vascular plants and four of the five cryptogams added to the second edition from Sawston were also reported from Hinton Moor in that work. These included very uncommon species such as *Drosera anglica*, *D. longifolia* [*D. intermedia*], *Ophrys loeselii* [*Liparis loeselii*], *Pinguicula vulgaris*, *Serapias palustris* [*Epipactis palustris*], *Utricularia minor* and the moss *Splachnum ampullaceum*. In the third edition Sawston Moor, like Shelford Moor, appears to have been used as a replacement for Hinton Moor, and eight of the ten additions are for species for which Hinton Moor had formerly been cited as a locality.

There are few references to Sawston Moor in Relhan's correspondence, although in a letter to J.E. Smith in August 1799 he told him to add Sawston Moor to

³¹ Relhan to Martyn, 26 November 1783 (Banksian MSS 103B, NHM). No locality is given in Relhan's letter, but the only locality in the 1785 *Flora* is from the pales of the plantations at Madingley.

³² T.G. Cullum, in his interleaved copy of Hudson (1778), opposite p. 83, noted that on 13 November 1792 Relhan "shewed me a specimen he gathered in Madingley Wood where they both grew out of the same root" (CUL694, SA).

³³ Relhan to Sowerby, 10 August 1795 (Sowerby Collection A47, NHM).

³⁴ Relhan to Sowerby, 9 July 1797 (Sowerby Collection A47, NHM); the material had been collected the previous November.

the sites for *Ophrys loeselii* and also listed it as a locality for *Calamagrostis colorata* [*Phalaris arundinacea*].³⁵

Eversden Wood, TL35L

Eversden Wood is an ancient wood some 11.5 km SW of Cambridge as the crow flies. It was known to Ray, who reported two species from it, *Paris quadrifolia* (1660) and *Thuidium tamariscinum* (1663); Martyn (1763, p. 41) listed only a few more. The three species reported from the site, new to the county, by Relhan (1788) were fungi. He returned to the area in August 1795, sending Sowerby the plant that was illustrated in English Botany as *Euphorbia stricta* [*E. platyphyllos*] (Smith 1796, t. 333) from a field of barley on the north side of the Wood.³⁶ This was a significant rediscovery of a species which had been reported by Ray & Dent (1685) but was not known in Britain to Relhan's contemporaries until this find. Most of the records from Eversden Wood published in the second edition (1802) of the *Flora* were additional sites for vascular plants. Relhan described a later visit to the Wood to Dawson Turner in April 1817: "My health, and strength are, I thank God both unbroken: not above a month ago I went to Eversden Wood, distant nine Miles from Cambridge, and returned the same day on foot, without being much fatigued. I there found *Dicranum majus*, but without fructification, have you one to spare?"³⁷

This was amongst the bryophytes and fungi new to the county reported from the Wood in the final edition of the *Flora* (1820). This cannot have been Relhan's last visit to Eversden Wood, as one of the few dated records in the *Flora* is that of *Lichen resupinatus*, "Eversden Wood. A.D. 1819".

Hall Wood, Wood Ditton, TL65U

Hall Wood was a large and presumably ancient wood; there are no published references to it in the works of Relhan's predecessors. It is in eastern Cambridgeshire, some 22 km E of Cambridge but only 5.5 km SE of Newmarket. I have included four records from a grove of oaks near Hall Wood (Relhan, 1793a) with those from this site. As Table 3 shows, the records from the wood were added to the third supplement (1793a) and the second edition (1802) of the *Flora*. This might suggest that the wood was only visited in the years between the second supplement (1788) and 1802 but this is not necessarily the case, as there are unlocalised records from Wood Ditton in the first two supplements (Table 4), including some from woodland (e.g. *Agaricus mollis*, *Jungermannia asplenioides* [*Plagiochila asplenioides*], *Melica uniflora*). It may be that the wood was visited before 1788 but that it, and the neighbouring Wood Ditton Park Wood, were only specifically named from the third supplement onwards.

There may be problems in distinguishing Relhan's records from those of John Hemsted from two sites in eastern Cambridgeshire, Hall Wood and Newmarket Heath. Relhan reported *Vicia sylvatica* [*Ervilia sylvatica*] in the 1793 supplement from Hall Wood, without any attribution to a recorder, but in the subsequent edition (1802) he added "First found by the Rev. Mr. Hemsted". Hemsted is also credited

³⁵ Relhan to Smith, 21 August 1799 (GB-110/JES/COR/8/87, LS).

³⁶ Relhan to Sowerby, 10 August 1795 (Sowerby Collection A47, NHM).

³⁷ Relhan to Turner, 27 April 1817 (O.13.13 52, WL).

Table 4. The number of newly published, localised records in the three editions of Relhan's *Flora Cantabrigiensis* (E1–3) and its three supplements (S1–3) from Wood Ditton. The number of additional records from other sources is also given after '+' in the Site column and included in the overall site totals given after the site name

Site	E1 (1785)	S1 (1786)	S2 (1788)	S3 (1793a)	E2 (1802)	E3 (1820)
Unlocalised, Wood Ditton (28)						
Cryptogams (11)			8		2	1
Vascular plants (14+3)		2			11	1
Hall Wood, Wood Ditton (36)						
Cryptogams (15)				13	2	
Vascular plants (20+1)				2	18	
Wood Ditton (Park) Wood (7)						
Cryptogams (3)				2	1	
Vascular plants (4)					3	1

with its discovery here by Smith (1793a, t. 79) and in 1792 he showed it to William Matthew [Mathew] who collected the material for illustration in *English botany* (Garry, 1903–04). However, none of the other species reported from Hall Wood in the third supplement was attributed to Hemsted in the second edition, even those still known from only this one site (e.g. *Boletus unicolor*, *Lysimachia nemorum*). It seems reasonable to assume that these were recorded by Relhan. There was a specimen of *L. nemorum* from the wood in Relhan's herbarium, as well as one of *V. sylvatica*.³⁸ We can be sure that Relhan knew the wood as he told J.E. Smith in 1799 that he had found *Carex strigosa* there three years before,³⁹ the record was duly published by Relhan (1802). The fact that he described *Vicia sylvatica* as *first* found there by Hemsted may well imply that he later saw this species there himself. Relhan is also known to have visited Ditton Park Wood, as he listed a record of *Arundo calamagrostis* [*Calamagrostis canescens*] from there in a letter sent to William Withering in 1795.⁴⁰

The wood survived long enough to appear on the first edition of the Ordnance Survey map, published in 1836. It had been grubbed up by 1860 (Babington, 1860, p. 62) although a small, much disturbed fragment of woodland survives on the site (Preston, 1993, p. 57).

Newmarket Heath

In the 18th century Newmarket Heath was a very extensive area of unenclosed land east of Cambridge, extending from the Fleam Dyke eastwards to Newmarket (Coombe 1987). For the purposes of mapping in Figs. 2–3, I have allocated almost all the records published by Relhan to tetrad TL66B, the area of the surviving portion of the Heath in Cambridgeshire. One record from his interleaved *Flora*, of *Astragalus*

³⁸ Listed in Babington's interleaved *Flora Cantabrigiensis* (CCC.47.354, CUL).

³⁹ Relhan to Smith, 21 August 1799 (GB-110/JES/COR/8/87, LS).

⁴⁰ Relhan to Withering, 22 October 1795 (RSM).

glycyphyllos "On both sides of the road for two miles on the Cambridge side of the Newmarket Heath tollgate, plentifully", can be localised to TL66A. Ray (1660) had provided a rather short list of special species from the Heath. New records of cryptogams were published in all six of Relhan's works. These comprised 10 fungi, including four earthstars or puffballs (*Lycoperdon* species), and 13 lichens but only four bryophytes. Relhan found one of the fungi, *Lycoperdon stellatum*, in his early days in the county, possibly in the autumn of 1783.⁴¹ Surprisingly he published no new records from the Devil's Dyke, a raised earthwork that crosses the Heath and had been known from Ray's time for its rich chalk grassland flora (Leslie, 2011).

John Hemsted also botanised on Newmarket Heath. He provided the specimen of *Phalaris arenaria* [*Phleum arenarium*] illustrated in *English botany* (Smith 1794b, t. 222), and later published by Relhan (1802). Hemsted also knew *Cineraria integrifolia* [*Tephroses integrifolia*] there (Smith, 1793b, t. 152), and found *Sphaeria clavata* in a plantation on the Heath (Relhan, 1802). Unfortunately, most of the records attributed to Hemsted in *English botany* and in Relhan's *Flora* are poorly localised and often given as 'Newmarket or 'near Newmarket' (Oswald, 1991).

Chippenham, TL66P, U and Z

Chippenham is some 24 km NE of Cambridge, and just over 6 km NNE of Newmarket. In addition to a few records simply given as Chippenham, Relhan noted species from Chippenham Park (TL66U), Moor(s) (TL66P) and Gravel Pit(s) (TL66Z), as well as one or two localities between them. He was the first Cambridge botanist to have left a record of species from Chippenham Moor, the site of the current National Nature Reserve, Chippenham Fen. His records from Chippenham (Table 3) come from the three supplements and the second edition of the *Flora*, suggesting that his visit(s) were made between 1785 and 1802. Species new to the county are reported in all four publications, presumably indicating more than one visit, although there is only one addition in the second supplement, *Myagrurn sativum* [*Camelina sativa*], and one in the third, *Carex rostrata*, and the latter might have been the result of taxonomic revision rather than further fieldwork. All but one of Relhan's records from Chippenham are vascular plants, the exception being the robust pleurocarpous moss *Hypnum stellatum* [*Campylium stellatum*]. This was reported in the first Supplement (1786), and shows that he visited the Moor before Thomas Tharp acquired it in 1791 and carried out extensive drainage works (Leslie, 2015).

Relhan's personal knowledge of the Chippenham area is clear from the letter he sent to Withering in October 1795, in which he describes *Galium anglicum* [*G. parisiense*] growing in perfection on Chippenham Park Wall and adds Chippenham Moors as a locality for *Utricularia minor*.⁴² His knowledge of Chippenham Park Wall is interesting as this was also a site known to John Hemsted, who sent material of *Prenanthes muralis* [*Mycelis muralis*] from there for illustration in *English Botany* in 1797 (Smith, 1798, t. 457). Relhan's significant record of *Cineraria palustris* [*Tephroses palustris*] from "Chippenham moor, near the Park" was reported to J.E. Smith in 1799, before its publication in the 1802 *Flora*.⁴³

Gamlingay Bogs, Heath and Park, TL25F and White Wood, Gamlingay, TL25B

⁴¹ He reported it from Newmarket Heath to Martyn on 26 November 1783 (Banksian MSS 103B, NHM).

⁴² Relhan to Withering, 22 October 1795 (RSM).

⁴³ Relhan to Smith, 21 August 1799 (GB-110/JES/COR/8/87, LS).

Gamlingay lies on the south-western edge of Cambridgeshire, some 22 km SW of Cambridge. Its range of acidic habitats on soils derived from the Woburn Sands were unmatched elsewhere in the county and therefore attracted Cambridge botanists from the time of Ray onwards. They continued to be a productive source of records in Relhan's day, as shown by the sequence of new records, especially of cryptogams, in all six works (Table 3).

Gamlingay was too far to be visited from Cambridge on a day's excursion until the opening of the Cambridge-Bedford railway line in 1862 provided a direct line from Cambridge to Gamlingay station. To earlier botanists, an excursion to Gamlingay required an overnight stay.⁴⁴ This was a problem for Relhan, as he explained to Dawson Turner in September 1800: "My unfortunate situation does not enable me to do much; indeed I cannot afford to spend any thing in excursions; as I assure you the state of my family all this summer has been not many degrees above starving, absolutely many times without bread, even this very day we all *dined* upon a calf's heart, 11 persons. ... I would have gone to Gamlingay as you desired but I could not ask Mr Mott for money, as he is a relation of Mrs R^s: and hardly condescends to speak to us when we meet him accidentally."⁴⁵

Turner clearly offered to pay Relhan's costs, as Relhan returned to the subject the following June: "You last year did me the honour to imagine that it would be worth your while to pay the expenses of my journey to Gamlingay: if you have not obtained our rarities there, I should be happy to execute your commands (I am sorry my situation forces me to add) on the terms proposed. I must be absent from home one night, and think I cannot go for less than one pound. You will determine therefore as you please."⁴⁶

Despite these financial constraints, Relhan clearly managed a series of visits to Gamlingay. The records summarised in Table 3 cannot be plausibly attributed to any other botanist. The cryptogams recorded from the Bogs, Heath and Park were largely bryophytes (15 species) with some fungi (6) but few lichens (2) and algae (1) whereas those from White Wood were mainly fungi (10) and lichens (5) with few bryophytes (3) and no algae. There is some, albeit rather sparse, independent evidence for Relhan's visits to Gamlingay. He found *Jungermannia pusilla* [*Fossombronia* sp.] on Gamlingay Heath in the summer of 1785.⁴⁷ He told J.E. Smith that *Phascum alternifolium* [*Archidium alternifolium*] was "found by me on Gamlingay Bogs, and shown there to Mr Griffith."⁴⁸ This must also have been found on an early visit to Gamlingay, as the record was first published by Relhan (1788).⁴⁹ In another letter he mentioned plants of *Ophrys ovata* [*Neottia ovata*] on Gamlingay Bogs with 3 and 4 leaves.⁵⁰ In October 1795 Relhan sent William Withering "a list of some of my discoveries since my last Supplement [1793a]". These included

⁴⁴ For Jenyns and Henslow's exploratory visit to Gamlingay on 24–25 August 1824 see Crompton (1997) and for the student excursions led by Henslow between 1827 and 1859, which involved a coach trip and an overnight stay, see also Preston & Hill (2019, pp. 32–33).

⁴⁵ Relhan to Turner, 25 September 1800 (O.13.1 147, WL).

⁴⁶ Relhan to Turner, 18 June 1801 (O.13.6 73, WL, originally misdated so bound in 1808 volume).

⁴⁷ Relhan to Pulteney, 21 December 1785 (MS/283c/10/13, LS). The locality is given in the 1786 supplement.

⁴⁸ Relhan to Smith, 5 September 1800 (GB-110/JES/ADD/84, LS).

⁴⁹ J. Wynne Griffith of Garn, Denbighshire was admitted to Trinity Hall as an undergraduate in 1781; he had presumably left before his marriage in February 1785 and he was taken off the register on 29 September 1786. Relhan told Withering that Griffith was his pupil and that he had taught him botany (Relhan to Withering, Spring 1797, RSM). For further details of Griffith's life, see Thorne (1986).

⁵⁰ Relhan to Smith, 21 August 1799 (GB-110/JES/COR/8/87, LS).

Centunculus minimus [*Lysimachia minima*] and *Utricularia minor* from Gamlingay Bogs.⁵¹ There were several vascular plant specimens from Gamlingay in Relhan's own herbarium and three undated bryophyte specimens collected there by him survive in the herbarium of William Skrimshire at Wisbech (Preston & Hill, 2019, p. 29).

Wisbech, TF40, TF41

As described above, Wisbech is at the northern end of Cambridgeshire, over 50 km from Cambridge. It clearly could not be visited in a day from Cambridge. Few of Relhan's records from there can be allocated to a tetrad, many just being from Wisbech (TF40) or described as occurring below Wisbech (TF41). However, taken together there are 25 records from Wisbech assignable to Relhan by the criteria adopted in this paper, 23 of them vascular plants with only one fungus, *Rhizomorpha setiformis* "in Mr. Peckover's Wine-cellar on a Sack of Sawdust", and one seaweed, *Fucus vesiculosus*. All of the published records are reported in the second Supplement (1788) or the second edition of the *Flora* (1802), and almost all the records in the second edition would not have qualified for the supplements as they are additional records of species already recorded in the county, rather than new species. The only exception is *Rhizomorpha setiformis*, which was perhaps sent to him. Similarly, almost all Relhan's other records from sites in the extreme north of the county, between Wisbech and Tydd Gote, Tydd Gote and Bardolph Fen,⁵² appear in the second edition of the *Flora*; there is just one exception, *Leonurus cardiaca* from Elm (Relhan, 1820). This suggests that Relhan must have made a visit to Wisbech between the publication of the first (1786) and second (1788) supplements.

Confirmation that Relhan did indeed visit Wisbech in 1787 comes from a letter he sent to Richard Pulteney in December of that year, in which he said "I have been confined almost all the Summer by the indisposition of my Wife; in the early part of it however I paid a visit to the fens of Cambridgeshire, and found some plants hitherto unknown in our Country, these, in addition to some others, will almost make a Supplementum alterum. I will subjoin a list merely to prove that I am not idle ... the marine Plants are found in the neighbourhood of Wisbech."⁵³ Amongst the plants in the list are all six vascular plant species reported from Wisbech, new to the county, in the 1788 Supplement.⁵⁴ A specimen of one of them, *Potamogeton marinum* [*Stuckenia pectinata*], from Wisbech, dated 1787, was seen by Babington in his herbarium. This journey is also referred to in the Prefaces of the first two Supplements. In 1786 he anticipated investigating all Cambridgeshire more thoroughly, "especially the heaths and fens" should "happier days favour me". In 1788 he reported that the journey to the Fenland areas had been "completed after a certain fashion (though happier days did not favour me)" but confessed that "the journey was quite hasty, and of such a sort that served to stimulate my eagerness more than to satisfy my pledges straightaway".⁵⁵

⁵¹ Relhan to Withering, 22 October 1795 (RSM).

⁵² Relhan was mistaken in thinking that Bardolph Fen is in Cambridgeshire; it is actually in Norfolk (Crompton, 2001–04).

⁵³ Relhan to Pulteney, 14 December 1787 (MS/283c/10/16, LS).

⁵⁴ Relhan (1788) reported both *Artemisia maritima* and *Triticum repens* [*Elymus repens*] var. γ from both above and below Wisbech, hence the total of nine records in Table 3. The *Triticum* variety is not included in the list of new species sent to Pulteney.

⁵⁵ The extracts from the Prefaces are my translations from Relhan's Latin text.

Relhan apparently made a further visit to Wisbech in 1795. He told Withering in October 1795 that he had “wandered about a good deal this Summer” and he included in this letter a record of *Bupleurum tenuissimum* from salt-water ditches at Wisbech, explicitly dated 1795, as well as listing *Conferva fucicola* and *Ruppia maritima* from Wisbech amongst his discoveries since the last supplement (1793a).⁵⁶ All three sites were included in the 1802 edition of the *Flora*, although the *C. fucicola* and *R. maritima* records were attributed there to Skrimshire. There are specimens labelled *R. maritima* (but actually *R. spiralis*) from Wisbech in Skrimshire’s herbarium dated 1795 (Preston *et al.*, 1994; Crompton, 2001), conceivably collected with Relhan as they are likely to have met on this visit.⁵⁷ Conversely there was a specimen of *Orobanche ramosa* [*Phelipanche ramosa*] in Relhan’s herbarium from Wisbech dated 1795, although the records of this species at Wisbech were attributed to Skrimshire by Relhan (1802). In a letter to Smith (August 1799), intended to provide records for his *Flora Britannica*, Relhan gave further details of *Bupleurum tenuissimum* at Wisbech, describing it as growing very abundantly, and he added brief localities for about 20 further species from Wisbech and Tydd Gote (as well as a description of a sign at Tydd Gote which suggests that he had seen it himself).⁵⁸ Almost all these records appeared (at least in abbreviated form) in the 1802 *Flora*, though in many cases they were attributed there to Skrimshire, even though he is not mentioned in the letter to Smith.

In summary, it is clear that Relhan botanised in the Wisbech area and that the species reported in the 1788 Supplement were found there by him in 1787. Although there is evidence for a later visit, in 1795, the extent to which he saw the species in the localities added in the 1802 *Flora* himself, perhaps guided by Skrimshire, as opposed to simply reporting Skrimshire’s own records, is not clear.

Discussion

The 1205 records attributed to Relhan in this paper must under-estimate his botanical activity. He must clearly have seen many species at sites which were not reported in the floras as the species in question were too frequent for individual localities to be listed, or had a few localities listed followed by ‘&c.’. Relhan must also have refound rarer vascular plant species at the sites at which they were known to Ray or the Martyns, but these cannot be identified from his publications. His letters to his botanical friends, for obvious reasons, concentrate on new records of rarer species. However, the extent to which I have under-estimated the geographical extent of Relhan’s fieldwork will be reduced by the fact that he would only need to have published a single new record from a site after 1785 for it to be identified in this analysis, and he is likely to have found significant new species at many of the localities he visited, especially as he was the first botanist to make a detailed study of algae, lichens and fungi in the county. The contribution to our knowledge of the 25 records (from six localities) noted by Babington from Relhan’s few localised herbarium specimens is instructive. Fourteen of these provide new records (as opposed to duplicating records extracted from the floras in this study), and they show (for example) that Relhan knew species such as *Arnosseris pusilla* [*A. minima*]

⁵⁶ Relhan to Withering, 22 October 1795 (RSM).

⁵⁷ Skrimshire invited John Hemsted to visit him in 1796 and they spent several days botanising together (Crompton & Nelson, 2000).

⁵⁸ Relhan to Smith, 21 August 1799 (GB-110/JES/COR/8/87, LS).

and *Osmunda spicant* [*Blechnum spicant*] at Gamlingay, where Ray had recorded them, and *Armeria maritima* and *Lepidium ruderae* at Wisbech, a site where they had first been found by John Martyn. However, 13 of the 14 records are from sites which we already know that Relhan had visited, from the records published in the *Flora*; only Leverington near Wisbech provides an additional site. This reinforces the view that although the number of Relhan's records will be under-estimated in the current study, this is less true of their geographical scope.

In addition to the inevitable under-estimation of his records, there is also a possibility that some of the records of known species at new sites published in the floras and attributed here to Relhan might have been made by other botanists. However, only two botanists appear to have been very active in the county between 1781 and 1820, Hemsted and Skrimshire, and most of their known records were restricted to the Newmarket and Wisbech areas respectively.

A consideration of all Relhan's records, including the hitherto neglected records of algae, lichens and fungi, provides much more information than would be available from his vascular plant and bryophyte records alone. Despite the uncertainty which is attached to some individual records, a clear picture of Relhan's fieldwork emerges from the analysis in this paper. It was very strongly concentrated in the area within walking distance of Cambridge. He visited some sites close to Cambridge, such as the Gogmagog Hills and Madingley, repeatedly over many years, and was able to cover sites as far away as Eversden Wood, some 11.5 km from Cambridge, on foot in a day's fieldwork. This range is broadly similar to that of Alfred Fryer, whose botanising in Cambridgeshire was also carried out on foot, and whose studies of *Potamogeton* were largely made at sites within 10 km of his home in Chatteris (Preston, 1988). Relhan's visits to more distant sites were much less frequent, although he clearly managed to make periodic visits to Gamlingay despite the distance involved. Although the geographical scope of his records was limited, he achieved a broad coverage of the county's habitats.

The details of the habitats and localities of species in the county in Relhan's published floras are very brief and rather formulaic (Fig. 1). Much of the charm of Ray's *Catalogus* (1660) lies in his ability to capture the habitat of a species in a vivid phrase; Relhan's work is dull by comparison. The format of the 1785 *Flora* remained unaltered through the three editions. It was perhaps devised at a time when the flora of a county was assumed to be rather unchanging. The lack of concern for temporal change is also shown by the failure of Relhan and many of his 18th century contemporaries to add dates to their herbarium specimens. However, the four decades in which Relhan was botanising in Cambridgeshire were a time of great landscape change (Preston, 2000; Wittering, 2013). Relhan made one or two brief references to this in his correspondence, but there is no mention of it in his floras. The effects can only be discerned by a detailed analysis, which shows how records from Hinton Moor, a favourite site, were replaced by those from similar sites at Shelford and Sawston in later years. By contrast Babington's *Flora of Cambridgeshire* (1860) had an explicit discussion of the effects of habitat change on plant species, and not only attributed records to individual recorders but also distinguished the records from "the older botanists" (Relhan and his predecessors) typographically.

It is clear, even from the fragments of evidence that survive, that Relhan was an active member of a community of naturalists in Cambridgeshire. They took each other to see plants in the field and exchanged and discussed specimens. On 19

September 1799, for example, John Hemsted visited Relhan in Cambridge, bringing two *Mentha* specimens which he had been unable to name; Relhan named them for him then took him to see four mint species *in situ* near Cambridge.⁵⁹ There were inevitably differences of opinion, such as the "little Dispute here about the *Crepis Biennis*" which Hemsted described to James Sowerby, "Mr. Mathew thinks he has found it; Relhan says it is not it".⁶⁰ Some sense of the degree to which botanists exchanged information with their contemporaries is provided by a letter in which Relhan complained to J.E. Smith that he had been denied credit for the discovery of some of the plants sent to Sowerby for illustration in *English botany*. *Phalaris arenaria* [*Phleum arenarium*] was illustrated from a specimen sent by Hemsted from Newmarket Heath (Smith, 1794b, t. 222), but in listing the new 'habitats' added since the publication of the third supplement for Smith in 1799, Relhan included the entry "Phalaris arenaria. Hemsted sent to you. Many of *his* Plants, were shown him by *me*".⁶¹ In another scrap of correspondence Relhan also complained that "I have been unfairly dealt <wi>th myself – – – and I will never in future shew any <p>lant not figured in English Botany without a <so>lemn promise that it shall not be sent without my leave to Sowerby. Mr Newton found the *Carex* <v>esicaria, and shewed it to me, and I shewed it to Mr Holme, who sent it unknown to me – I am not pleased. <H>e is a worthy man, or I should scold him well".⁶²

Relhan acknowledged that his fieldwork in 1787 was restricted by the need to care for his wife (see Wisbech, above) and in 1802 he told Dawson Turner that the four hours a day he spent lecturing to pupils limited the distance he could travel. His time during the University term was still "very much occupied by private Pupils" in 1817.⁶³ However, there is no doubt that the main limits to his ability to visit the more distant parts of the county were not lack of time but shortage of funds. He referred to his "straightened circumstances"⁶⁴ in the Preface to the 1786 Supplement, and in 1788 concluded the Preface with the phrase "*Non me paupertas vitae traducet inert*", "My poverty will not lead me to an idle life", reversing the meaning of the original line of Tibullus, "*Me mea paupertas vita traducet inert*", usually translated as "Let humble means lead me to an indolent life". His Preface to the 1802 *Flora* mentioned the loss of his herbarium and the "cruel necessity" which had forced him to sell his books. "FLORA CANTABRIGIENSIS could have boasted a greater abundance, if happier days had favoured the author; if straightened circumstances had not always forbidden the cost of journeys; and if everyday miseries had not weighed down a mind struggling in vain".

⁵⁹ Relhan to Sowerby, 19 September 1799 (Autograph collection, Botany Department, NHM).

⁶⁰ Hemsted to Sowerby, 8 July 1793 (Autograph collection, Botany Department, NHM). Mr Mathew was the Suffolk botanist William Mathew of Bury St Edmunds.

⁶¹ Relhan to Smith, 21 August 1799 (GB-110/JES/COR/8/87, LS). This remark may not have applied to *P. arenarium*, as Relhan attributed that record to Hemsted when it was published in the *Flora* (1802, 1820).

⁶² Relhan to Smith, undated (GB-110/JES/ADD/84, LS). For comments on the dating of this letter and its editorial treatment, see footnote 12. The passage cited here follows directly from the extract quoted earlier. The illustration was published as *C. ampullacea* (Smith, 1800, t. 780) and the text explains that "We received our specimen by favour of Mr. J. Holme of Peter-house, Cambridge, from a watery gravel-pit near that town, where the plant was first remarked by the Rev. Mr. Newton, F.L.S."

⁶³ Relhan to Turner, 24 April 1802 and 27 April 1817 (O.13.2 161 and O.13.13 52, WL).

⁶⁴ Relhan's phrase "*rei familiaris angustias*" comes from Chapter 9 of Suetonius' life of Claudius; I have taken the translation "straightened circumstances" from the Loeb Classical Library edition (1913–14).

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